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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/267,781	03/15/1999	DENNY M. LIN	36J.P191	7568

5514 7590 12/31/2002

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NEW YORK, NY 10112

EXAMINER

WHIPKEY, JASON T

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 12/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/267,781

Applicant(s)

LIN, DENNY M.

Examiner

Jason T. Whipkey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3,6,7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Drawings

- ✓1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "31" has been used to designate both a boundary (Figure 1) and an imaging sensor chip (Figure 2). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

- ✓2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "33" has been used to designate both an overlap region (Figure 1) and a sensor array (Figure 2). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 5, 6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCubbrey in view of Tromborg.

Regarding claims 1 and 6, McCubbrey discloses an image processing system that may obtain an image matrix from a television camera (column 3, line 68, through column 4, line 2). The image is divided into three sections for processing by pipelines 12, 14, and 16, which are shown in Figure 1 (column 3, lines 64-67). Boundary image data may be duplicated by transferring pixels between stages 18, 24, and 30 via connections 60 and 62 (column 4, lines 51-67).

McCubbrey is silent with regard to the type of sensor array used in the television camera.

Tromborg discloses a monolithic one- or two-dimensional image sensor (column 3, lines 5-10). As shown in Figure 2, the transfer shift register is divided into multiple segments 141 to 14n, which provide parallel outputs. As stated in column 3, lines 61-62, "Each of these outputs may then be supplied to a separate processor."

As stated in column 4, lines 48-54, the advantage to supplying parallel outputs from the imaging array is that multiple low cost, low performance processors may be used in place of a single high cost, high performance processor. For this reason, it would have been obvious at the time of invention to have McCubbrey's image processing system obtain image data from a camera using Tromborg's image sensor.

Regarding claims 5 and 10, McCubbrey teaches that stages 18-32 are processors (column 3, lines 37-42). Stages 18-32 are arranged in pipelines 12, 14, and 16, as shown in Figure 1. Boundary image data may be duplicated by transferring

pixels between stages 18, 24, and 30 via connections 60 and 62 (column 4, lines 51-67). As shown in Figure 3, pixel overlapping occurs among pipelines, with pixels 4, 5, 8, and 9 transferred between stages, for example.

5. Claims 2-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCubrey in view of Tromborg and further in view of Doran.

Claims 2 and 7 may be treated like claims 1 and 6, respectively. However, both McCubrey and Tromborg are silent with regard to duplicating data for overlap regions.

Doran discloses a system used to process images at a high speed. As shown in Figure 3, splitter 32 receives scan line pixel data 30 from scanner 18 and divides them into channels 30-1 through 30-4 (column 8, lines 52-60). Overlap data T and B are added to the beginning and end of each channel's image data, wherein the overlap data come from adjacent channels (column 8, line 61, through column 9, line 14). Therefore, overlap data B from channel 30-1-1 and T from channel 30-2-1 are available to channels 30-1-1 and 30-2-1. Each channel is then processed in pipeline form, as shown in Figure 1.

As stated in column 10, lines 12-18, the advantage to duplicating image data for use in multiple pipelines is that the formation of "seams" between image segments can be prevented. For this reason, it would have been obvious at the time of invention to have McCubrey's image processing system include pixel-duplicating means.

Claims 3 and 8 may be treated like claims 1 and 6, respectively, and may be rejected using the rationale used for claims 2 and 7. Additionally, McCubrey teaches

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that stages 18-32 are processors (column 3, lines 37-42) that are arranged in pipelines 12, 14, and 16, as shown in Figure 1.

Doran also teaches that all data — including the duplicate overlap data — are stored in memory unit 32-A or 32-B until all data are received, at which point the data are transferred to the processing pipelines (column 33, lines 21-33).

Regarding claims 4 and 9, Doran teaches that scanner 18 may be a conventional charge-coupled device (column 6, lines 20-21). Doran is silent with regard to whether buffer memories 32-A and 32-B are located on the same chip as scanner 18.

Official Notice is taken that image pickup devices are often placed on chips separate from their associated processing circuitry. An advantage to doing so is that a custom image pickup chip is not necessary for each application, thus reducing design costs. For this reason, it would have been obvious at the time of invention to have Doran place buffer memories 32-A and 32-B on a chip separate from scanner 18.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason T. Whipkey, whose telephone number is (703)

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305-1819. The examiner can normally be reached Monday through Friday from 8 A.M. to 5:30 P.M. eastern standard time, alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber, can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned are (703) 872-9314 for both regular communication and After Final communication.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office, whose telephone number is (703) 306-0377.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

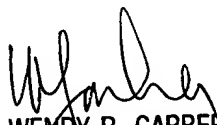
or faxed to (703) 872-9314 for either formal or informal communications intended for entry. (For informal or draft communications, please label "**PROPOSED**" or "**DRAFT**".)

Hand-delivered responses should be brought to the sixth floor receptionist of Crystal Park II, 2121 Crystal Drive in Arlington, Virginia.

JTW

JTW

December 10, 2002


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600